



# Indian Ocean – South-East Asian Marine Turtle Memorandum of Understanding



## Maldives

### GENERAL INFORMATION

**Agency or institution primarily responsible for the preparation of this report:**

Marine Research Centre (MRC) and Fisheries Management Agency (FMA) of the Ministry of Fisheries and Agriculture

**Other agencies, institutions, or NGOs that have provided input:**

None,

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## OBJECTIVE I. REDUCE DIRECT AND INDIRECT CAUSES OF MARINE TURTLE MORTALITY

### 1.1 Introduction to marine turtle populations and habitats, challenges and conservation efforts. [INF]

The Maldives is a chain of 26 coral atolls, containing 1192 islands, that extends approximately 860km from latitude 7o6'35"N to 0o42'24"S, and between longitude 72o33'19"E to 73o46'13"E (Woodroffe 1989, Ali 2004). The islands vary in size (approx. 0.5 km<sup>2</sup> - approx. 5.0 km<sup>2</sup>) and in shape (small sandbanks with sparse vegetation - elongated strip islands). Approximately 80% of the land area of the Maldives is less than 1 meter above mean high tide level (maximum height about 3 meters) (MHAHE, 1999).

A nationwide ban on harvesting adult and juvenile turtles began 1995; in addition, a 10 year moratorium on the harvesting of turtle eggs was started. A new 10 year moratorium began on January 1, 2006 (Maldivian Fisheries Law, Clause 10, Law No. 5/87).

The only compiled report about the sea turtles of Maldives is in the "Marine Research Bulletin" published from Marine Research Center (Frazier et al. 2000, Zahir 2000). Adult and immature green turtles (*Chelonia mydas*) forage throughout

the archipelago; nesting occurs on many islands (Kunfunadhoo and Maadhoo Islands (Baa), Hukuruelhi (now changed to Hukurudhoo) Island (Ari), Gaadhoo, Hithadhoo and Isdhoo islands (Laamu)). Adult and immature hawksbill turtles (*Eretmochelys imbricata*) forage throughout the archipelago. Nesting occurs on Kunfunadhoo (Baa) and Baros (North Malé). Nesting, at least in small numbers, occurs on most uninhabited islands of the atolls (Frazier et al. 2000, Zahir 2000, Zahir 2006).

Three other marine turtle species have been reported from the archipelago: The olive ridley (*Lepidochelys olivacea*), the loggerhead (*Caretta caretta*), and the leatherback (*Dermochelys coriacea*) (Frazier et al. 2000, Zahir 2000, Zahir 2006). These species are not common; information concerning their occurrence and distribution (including nesting) is scant. A more current assessment is needed.

Although eggs of both green and hawksbill turtles were eaten in the past; the level of current consumption is unknown. The same is true concerning the local consumption of meat, which traditionally focuses on green turtles. There is a history of commercial use of hawksbill shell but this has been legislated against. However, collection of turtle eggs is allowed in view of their traditional importance as a protein source. As a result, the stocks are considered depleted until better data provide a clearer picture of their status.

Based on Ali, M. (2004). The Maldives: National Report. Status and developmental potential of the coastal and marine resources of the Maldives and their threats. GEF PDF Block B Phase of FAO/BOBLME Programme Sustainable Management of the Bay of Bengal Large Marine Ecosystem (BOBLME) GCP/RAS/179/WBG

Liew, Hock-Chark (2009). Turtle Conservation Plan for Gan Island. Maldives component in the Regional Programme for Participatory and Integrated Agriculture, Forestry and Fisheries Development for Long-term Rehabilitation and Development in Tsunami-affected Areas (GCP/RAS/218/JPN).

MHAHE (Ministry of Home Affairs Housing and Environment), (1999) Second National Environment Action Plan NEAP II, Male' Maldives.

Woodroffe, C. (1989) Maldives and Sea Level Rise: An Environmental Perspective. University of Wollongong, Australia.

Zahir, H. (2006). Sea turtles in the Maldives: Status, threats and management. Workshop on Assessing the relative importance of sea turtle mortality due to fisheries Zanzibar, 25-28 April 2006. (PowerPoint presentation).

See also references listed in Section 3.1.1

### **1.2.1 Describe any protocol or approaches practiced in your country, which you consider exemplary, for minimising threats to marine turtle populations and their habitats, which may be suitable for adaptation and adoption elsewhere. [BPR]**

To minimize threats to marine turtle populations, a blanket ban on taking live turtles within the EEZ of Maldives was imposed under clause 10 of the Fisheries Law of the Maldives for a period of 10 years from 1995. This ban was extended a further 10 years from 2006 and live capture of turtles and harvesting eggs was banned completely from 10 Islands from January 2006 and further three island from January 2007. These 13 islands are; Ha. Miludhoo, HDh. Vaikaramuraidhoo, HDh. Muiri, R. Furaveri, R. Vandhoo, B. Maduvvari, B. Maaddoo, B. Olhugiri, B. Miriyandhoo, Th. Kanimindhu, Th. Fonaddu, Th.Kandoodhoo, L. Gaadhoo, GDh. Gan. There is however, a serious concern about this management approach as the demand for harvesting turtle eggs has continued to rise and expansion of tourism encroaching some of these areas. Work has started to develop a status report and a management plan for the conservation of marine turtle in the Maldives.

### **1.3.1 Describe any socio-economic studies or activities that have been conducted among communities that interact with marine turtles and their habitats. [BPR, INF]**

Tourism and fishing are the greatest contributors to the development of the Maldives. Work has started to develop a status report and a management plan for the conservation of marine turtles in the Maldives.

**1.3.2 Which of these adverse economic incentives are underlying threats to marine turtles in your country? [TSH]**

- High prices earned from turtle products relative to other commodities
- Lack of affordable alternatives to turtle products
- Ease of access to the turtle resource (eg. by virtue of proximity or ease of land/water access)
- Low cost of land near nesting beaches
- Low penalties against illegal harvesting
- Other1: Lack of awareness
- Other2: Lack of initiatives from enforcement agencies
- Other3: lack of resources (human and financial)
- None of the above or Not Applicable

**1.3.3 Has your country has taken any measures to try to correct these adverse economic incentives? [BPR]**

YES  NO  NOT APPLICABLE (no adverse economic incentives exist)

**1.4.1 Indicate, and describe in more detail, the main fisheries occurring in the waters of your country, as well as any high seas fisheries in which flag vessels of your country participate, that could possibly interact with marine turtles. [INF]**

**a) Shrimp trawls:**  YES  NO

N/A

**b) Set gill nets:**  YES  NO

N/A

**c) Anchored Fish Aggregating Devices (FADs):**  YES  NO

Tuna are caught around Fish Aggregating Devices (FADs), as well as in open water and associated with drifting flotsam and sometimes along the outer reef edge. Under IOTC requirements, countries that uses FADs in tuna fishing must submit FAD Management Plans by end of 2013. Maldives has submitted its FAD Management Plan. Countries are encouraged not to use non-degradable material for FADs, and it is discouraged to use any form of netting for the attracting tuna.

**d) Purse seine (with or without FADs):**  YES  NO

N/A

**e) Longline (shallow or deepset):**  YES  NO

Long-line minimum depth for main line is 60m (target: yellow fin and big eye tuna in deep water). The Longline regulation has provisions to reduce marine turtle bycatch. The regulation urges longline vessels to have dehookers for removal of hook and line cutter on board, to release the caught marine turtles as prescribed in the IOTC Resolution 12/04.

**f) Driftnet:**  YES  NO

**g) Other1:**

The tuna fishery is the major fishery and utilizes three techniques:

- 1) Pole and line fishery (skipjack and small yellow fin tuna),
- 2) Hand-line fishery (large yellow fin tuna), and
- 3) Long-line fishery (listed above)

**h) Other2:**

Ghost nets from international sources catch and kill turtles in the waters of the Maldives.

See: Anderson, R. C., Zahir, H., Jauharee, R., Sakamoto, T., Sakamoto, I., and Johnson, G. (2009). Entanglement of Olive Ridley Turtles *Lepidochelys olivacea* in ghost nets in the equatorial Indian Ocean IOTC-2009-WPEB-07. This is still an issues in the Maldives. A private initiative that started as a facebook page to report turtle entanglements in the Maldives page has now turned into a now an initiative . A project proposal has been submitted to BOBLME Project to document and report the activities of the Oliveridley Project.

**None of the above**

**1.4.2 Please indicate the relative level of fishing effort and perceived impact of each of the above fisheries on marine turtles (e.g. in terms of by-catch). [TSH]**

**a) Shrimp trawls**

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

Source: FMA (Fisheries Management Agency). No shrimp trawl fishery exist in the Maldives.

**b) Set gill nets**

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

Source: FMA (Fisheries Management Agency). No set gillnet fishery exist in the Maldives.

**c) Anchored Fish Aggregating Devices (FADs)**

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

Source: FMA (Fisheries Management Agency). There are no reported cases of turtles being caught near the FADs since fishing around FADs are from pole-and-line and from handline only.

**d) Purse seine (with or without FADs)**

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

Source: FMA (Fisheries Management Agency). No purse seine fishery exist in the Maldives.

**e) Longline (shallow or deepset)**

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

Source: FMA (Fisheries Management Agency). Currently, deep water long-line fishery is in the experimental phase. No cases of turtles being captured have been reported so far.

**f) Driftnet**

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

Source: FMA (Fisheries Management Agency). No drift net fishery exists in the Maldives.

**g) Other1 (from 1.4.1):**

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

Source:

**h) Other2 (from 1.4.1):**

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

Source:

**1.4.3 Describe any illegal fishing that is known to occur in or around the waters of your country that may impact marine turtles. Describe the measures being taken to deal with this problem and any difficulties encountered in this regard. [TSH]**

Longliners and gill-netters are believed to be the illegal fishery that would most affect marine turtle populations.

A growing problem is the "entanglement and mortality of turtles in "ghost nets": nets or bits of net that have been lost or jettisoned. These include both bits of gillnet and drifting FADs." (Anderson et al., 2009).

(Anderson, R. C., Zahir, H., Jauharee, R., Sakamoto, T., Sakamoto, I., and Johnson, G. (2009). Entanglement of Olive Ridley Turtles *Lepidochelys olivacea* in ghost nets in the equatorial Indian Ocean IOTC-2009-WPEB-07.)

**1.4.4 Which of the following methods are used by your country to minimise incidental capture/mortality of marine turtles in fishing activities? [IND]**

a) **Appropriate handling** of incidentally caught turtles (e.g. resuscitation or release by fishers using equipment such as de-hooking, line cutting tools and scoop nets)

**YES**  NO  NOT APPLICABLE

Longline fishing vessel are mandated to carry de-hookers on board the vessel to dehook and release the any turtles caught on longline.

b) **Devices that allow the escape of marine turtles** (e.g. turtle excluder devices (TEDs) or other measures that are comparable in effectiveness)

YES  **NO**  NOT APPLICABLE

c) **Measures to avoid encirclement** of marine turtles in purse seine fisheries

YES  NO  **NOT APPLICABLE**

d) **Appropriate combinations** of hook design, type of bait, depth, gear specifications and fishing practices

**YES**  NO  NOT APPLICABLE

See: Adam, M. Shiham (2006). Country review: Maldives. Pp. 383-391. In: De Young, C. (ed.) (2006). Review of the state of world marine capture fisheries management: Indian Ocean. FAO Fisheries Technical Paper. No. 488. Rome, FAO. 2006. 458p.

e) **Monitoring and recovery of fish aggregating devices** (FADs)

**YES**  NO  NOT APPLICABLE

f) **Net retention and recycling schemes**

YES  NO  **NOT APPLICABLE**

g) **Spatial and temporal control of fishing** (e.g. seasonal closures of fishing activities)

YES  NO  **NOT APPLICABLE**

'No' for tuna and bait commercial fisheries but 'Yes' for shark fishery

See: Adam, M. Shiham (2006). Country review: Maldives. Pp. 383-391. In: De Young, C. (ed.) (2006). Review of the state of world marine capture fisheries management: Indian Ocean. FAO Fisheries Technical Paper. No. 488. Rome, FAO. 2006. 458p.

h) **Effort management control**

YES  NO  **NOT APPLICABLE**

Other (list and explain):

None of the above

**1.4.5 Which of the following programmes has your country developed - in consultation with the fishing industry and fisheries management organisations - to promote implementation of measures to minimise incidental capture and mortality of turtles in national waters and in the high seas? [IND]**

**Onboard observer programmes**

YES  NO  **NOT APPLICABLE**

**Vessel monitoring systems**

**YES**  NO  NOT APPLICABLE

Only for the EEZ component of the fishery

See: Adam, M. Shiham (2006). Country review: Maldives. Pp. 383-391. In: De Young, C. (ed.) (2006). Review of the state of world marine capture fisheries management: Indian Ocean. FAO Fisheries Technical Paper. No. 488. Rome, FAO. 2006. 458p.

**Inspections** (i.e. at sea, in port, at landing sites)

**YES**  NO  NOT APPLICABLE

**Training programmes / workshops** to educate fishers

**YES**  NO  NOT APPLICABLE

**Informative videos, brochures, printed guidelines** etc.

**YES**  NO  NOT APPLICABLE

**Other (list and explain):** Maldives has currently in discussions with the Bay of Bengal Large Marine Ecosystem Project to undertake a study on observation of turtle entanglements in the Maldivian and adjacent seas

YES  NO  NOT APPLICABLE

MRC is engaging with the Oliveridely Project ([www.oliveridleyprojec.org](http://www.oliveridleyprojec.org)) to undertake an assessment of the observation of turtle entanglements in the Maldivian waters and adjacent seas.

**None of the above**

**1.4.6 Are the mitigation measures described in 1.4.4 and 1.4.5, periodically reviewed and evaluated for their efficacy? [SAP]**

YES  **NO**  UNSURE

**1.4.7 In your country, what types of data collection, research and development have been undertaken to support the reduction of marine turtle incidental catch (while taking into consideration the impact of various mitigation measures on other species)? [SAP]**

1. Marine Research Center has conducted data collection surveys on selected islands to determine the number of nesting and the amount of nesting islands and foraging areas. (These islands were selected based on the historical reports of nesting per Island per annum).
2. The research unit of the Ministry of Fisheries and Agriculture also collects data from all the islands separately, which helps to determine turtle population, diversity, and the changes to the turtle population.

**1.4.8 Has your country exchanged information and provided technical assistance (formally or informally) to other Signatory States to promote the activities described in 1.4.4, 1.4.5 and 1.4.7 above? [SAP]**

**YES**  NO  UNSURE

**1.4.9 What legislative and practical measures has your country taken in support of UN General Assembly Resolution 46/215 concerning the moratorium on the use of large-scale driftnets? [SAP]**

N/A

**1.5.1 Does your country have legislation to prohibit direct harvest and domestic trade in marine turtles, their eggs, parts and products; and to protect important turtle habitats? [IND]**

YES  NO  UNSURE

In recognition of the fate of the turtle populations, the Ministry of Fisheries and Agriculture (MOFA), under clause 10 of the Fisheries Law of the Maldives (Law no. 5/87), declared and enforced a total ban, effective from the 25th June 1995, on any fishing activity involving killing, capturing and harming of any turtle species within the national territory and exclusive economic zone (EEZ) of the Republic of Maldives. The presidential decree was imposed for 10 years and later extended to another 10 years from 2006. Also MOFA has implemented total ban on egg harvest from 13 islands.

**1.5.2 Which, among the following list, are economic uses and cultural values of marine turtles in your country? Please rate the relative prevalence / importance of each consumptive or non-consumptive use. [INF]**

**USES / VALUES**

**RELATIVE PREVALENCE / IMPORTANCE**

**Meat consumption**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Egg consumption**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Shell products**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Fat consumption**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Traditional medicine**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Eco-tourism programmes**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

### Cultural / traditional significance

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

### Other

Production and export of any products, or products made using parts of turtles, are prohibited by law.

### 1.5.3 Please indicate the relative level and impact of traditional harvest on marine turtles and their eggs. [IND, TSH]

#### Level of harvest:

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

#### Impact of harvest:

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

Source of information:

Turtle Research Programme (Mr. Hussain Zahir, Marine Research Center)

### 1.5.4 Have any domestic management programmes been established to limit the levels of intentional harvest? [SAP]

YES  NO  UNKNOWN

Total 13 Islands from Maldives have selected based on the number of nesting sites per year and have banned from harvesting eggs and catching live turtles from the selected islands. Those Islands are also monitored regularly to minimize intentional harvesting.

Also See:

Liew, Hock-Chark (2009). Turtle Conservation Plan for Gan Island. Maldives component in the Regional Programme for Participatory and Integrated Agriculture, Forestry and Fisheries Development for Long-term Rehabilitation and Development in Tsunami-affected Areas (GCP/RAS/218/JPN).

### 1.5.5 Describe any management agreements negotiated between your country and other States in relation to sustainable levels of traditional harvest, to ensure that such harvest does not undermine conservation efforts. [BPR]

N/A

### 1.6.1 First, select one of the options at left to indicate whether or not your country has any of the following measures in place to minimise the mortality of eggs, hatchlings and nesting females. If yes, then estimate the relative effectiveness of these measures. [IND, SAP]

**MEASURES**

**RELATIVE EFFECTIVENESS**

**Monitoring/protection programmes**

**YES**  NO  N/A

EXCELLENT  GOOD  LOW  **UNKNOWN**

**Education/awareness programmes**

**YES**  NO  N/A

EXCELLENT  GOOD  **LOW**  UNKNOWN

**Egg relocation/hatcheries**

**YES**  NO  N/A

EXCELLENT  **GOOD**  LOW  UNKNOWN

**Predator control**

YES  NO  **N/A**

EXCELLENT  GOOD  LOW  UNKNOWN

**Vehicle / access restrictions**

YES  NO  **N/A**

EXCELLENT  GOOD  LOW  UNKNOWN

**Removal of debris / clean-up**

YES  NO  **N/A**

EXCELLENT  GOOD  LOW  UNKNOWN

**Re-vegetation of frontal dunes**

YES  NO  **N/A**

EXCELLENT  GOOD  LOW  UNKNOWN

**Building location/design regulations**

**YES**  NO  N/A

EXCELLENT  **GOOD**  LOW  UNKNOWN

**Light pollution reduction**

**YES**  NO  N/A

EXCELLENT  **GOOD**  LOW  UNKNOWN

**Other (list and rate them)**

YES  NO  N/A

**1.6.2 Has your country undertaken any evaluation of its nest and beach management programmes? [SAP]**

YES  NO  **NOT APPLICABLE**

Maldives Marine Research Center has actively carried out the evaluation of nesting sites through their research programme, but a beach management programme has not yet been carried out. However, it is expected to be addressed in the Marine Turtle Management plan programmed for this year from Fisheries Management Agency.

## **OBJECTIVE II. PROTECT, CONSERVE AND REHABILITATE MARINE TURTLE HABITATS**

**2.1.1 What is being done to protect critical habitats *outside* of established protected areas? (NB: It is assumed that legislation relating to established protected areas will have been described in Section 1.5.1) [BPR, SAP]**

No protected areas have been established specifically for turtles; a series of 25 protected marine areas exists throughout the archipelago.

**2.1.2 Are assessments routinely made of the environmental impact of marine and coastal development on marine turtles and their habitats? [IND, SAP]**

YES  **NO**  NOT APPLICABLE

**2.1.3 Is marine water quality (including marine debris) monitored near turtle habitats? If yes, describe the nature of this monitoring and any remedial measures that may have been taken. [SAP]**

YES  **NO**  NOT APPLICABLE

**2.1.4 Are measures in place to prohibit the use of poisonous chemicals and explosives? [SAP]**

YES  NO  NOT APPLICABLE

**2.2.1 Are efforts being made to recover degraded coral reefs? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc). [IND, SAP]**

**YES**  NO  NOT APPLICABLE (no degraded coral reefs)

Angell, C.L. 2004. Review of Critical Habitats: Mangroves and Coral Reefs. Unpublished report prepared for the BOBLME Programme. Unedited version.

**2.2.2 Are efforts being made to recover degraded mangrove habitats that are important for turtles? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc.) [IND, SAP]**

YES  NO  NOT APPLICABLE (no mangrove habitats important for turtles)

Angell, C.L. 2004. Review of Critical Habitats: Mangroves and Coral Reefs. Unpublished report prepared for the BOBLME Programme. Unedited version.

**2.2.3 Are efforts being made to recover degraded sea grass habitats? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc.). [IND, SAP]**

YES  NO  NOT APPLICABLE (no degraded sea grass habitats)

**OBJECTIVE III. IMPROVE UNDERSTANDING OF MARINE TURTLE ECOLOGY AND POPULATIONS THROUGH RESEARCH, MONITORING AND INFORMATION EXCHANGE**

**3.1.1 Give a list of available literature that includes baseline information from studies carried out in your country on marine turtle populations and their habitats. [INF]**

Anon. (2005). MALDIVES: Post-Tsunami Environmental Assessment. United Nations Environment Programme.

Anderson, R. C., Zahir, H., Jauharee, R., Sakamoto, T., Sakamoto, I., and Johnson, G. (2009). Entanglement of Olive Ridley Turtles *Lepidochelys olivacea* in ghost nets in the equatorial Indian Ocean IOTC-2009-WPEB-07.

Didi, N. T. Hassan. 1983. Sea Turtles in the Maldives. In: Annual Fisheries , Report, No.3. Ministry of Fisheries, Male. pp 174-177.

Frazier, J. (1980) Exploitation of marine turtles in the Indian Ocean. *Human Ecology*, 8: 329–370.

Frazier J; Salas S; Didi, N. T. H. (1984). Marine Turtles of Maldivian Archipelago. In: Marine Turtles of the Maldives Archipelago published in 2000. *Marine Research Bulletin*, 4: 5-42.

Liew, Hock-Chark (2009). Turtle Conservation Plan for Gan Island. Maldives component in the Regional Programme for Participatory and Integrated Agriculture, Forestry and Fisheries Development for Long-term Rehabilitation and Development in Tsunami-affected Areas (GCP/RAS/218/JPN).

Zahir, H (2000). Status of Sea Turtles in Maldives. In: Marine Turtles of the Maldives Archipelago published in 2000. *Marine Research Bulletin*; 4: 43 -61.

Zahir, H (2000). Preliminary Findings of the Survey of the Nesting Beaches in Haa Alifu Atoll, Maldives. *Marine Research Bulletin* 4: 2-66.

Zahir, H (2006). Status of leatherback turtles in Maldives. Indian Ocean – South-East Asian Leatherback Turtle Assessment. IOSEA Marine Turtle MoU –83

Zahir, H. (2006). Sea turtles in the Maldives: Status, threats and management. Workshop on Assessing the relative importance of sea turtle mortality due to fisheries Zanzibar, 25-28 April 2006. (PowerPoint presentation).

**3.1.2 Have long-term monitoring programmes (i.e. of at least 10 years duration) been initiated or planned for priority marine turtle populations frequenting the territory of your country? [IND, BPR]**

**YES**  NO  UNSURE

See Zahir (2006) for trend data.

Zahir, H. (2006). Sea turtles in the Maldives: Status, threats and management. Workshop on Assessing the relative importance of sea turtle mortality due to fisheries Zanzibar, 25-28 April 2006. (PowerPoint presentation).

**3.1.3 Has the genetic identity of marine turtle populations in your country been characterised? [INF, PRI]**

YES  **NO**  UNSURE

**3.1.4 Which of the following methods have been or are being used to try to identify migration routes of turtles? Use the text boxes to provide additional details. [INF, PRI]**

**Tagging**  **YES**  NO

The turtle conservation project run by Banyan Tree Maldives continues to monitor turtles released to the wild. In order to know each turtle better they have introduced uniquely identifiable method which includes carapace marking and titanium branding tags.

They are based on the designed used for cattle branding and carry a return address which allows any one who encounters the turtle to contact our project and let us know of the turtles fate and where its travels had taken it.

**Satellite tracking**  **YES**  NO

Banyan Tree Maldives has satellite-tracked six green turtles from 2002 -2007. Project details can be found in the IOSEA Satellite Tracking Metadatabase.

**Other**

**None of the above**

**3.1.5 Have studies been carried out on marine turtle population dynamics and survival rates (e.g. including studies into the survival rates of incidentally caught and released turtles)? [INF, PRI]**

YES  **NO**  UNSURE

**3.1.6 Has research been conducted on the frequency and pathology of diseases in marine turtles? [INF, PRI]**

YES  **NO**  UNSURE

**3.1.7 Is the use of traditional ecological knowledge in research studies being promoted? [BPR, PRI]**

YES  NO  UNSURE

**3.2.1 List any regional or sub-regional action plans in which your country is already participating, which may serve the purpose of identifying priority research and monitoring needs. [INF]**

IOSEA, BOBLME

**3.2.2 On which of the following themes have collaborative studies and monitoring been conducted? Use the text boxes to describe the nature of this international collaboration or to clarify your response. Answer 'NO' if the studies/monitoring undertaken do not involve international collaboration. [INF, PRI]**

a) Genetic Identity  YES  NO  NOT APPLICABLE

b) Conservation status  YES  NO  NOT APPLICABLE

c) Migrations  YES  NO  NOT APPLICABLE

d) Other biological and ecological aspects  YES  NO  NOT APPLICABLE

Other

**3.3.1 List, in order of priority, the marine turtle populations in your country in need of conservation actions, and indicate their population trends. [PRI]**

1. Green turtle

From: Zahir H. (2006). Sea turtles in the Maldives: Status, threats and management. Workshop on Assessing the relative importance of sea turtle mortality due to fisheries Zanzibar, 25-28 April 2006. (PowerPoint presentation).

2. Hawksbill turtle

From: Zahir H. (2006). Sea turtles in the Maldives: Status, threats and management. Workshop on Assessing the relative importance of sea turtle mortality due to fisheries Zanzibar, 25-28 April 2006. (PowerPoint presentation).

**3.3.2 Are research and monitoring activities, such as those described above in Section 3.1 periodically reviewed and evaluated for their efficacy? [SAP]**

YES  NO  UNSURE

**3.3.3 Describe how research results are being applied to improve management practices and mitigation of threats (in relation to the priority populations identified in 3.3.1, among others). [SAP]**

Results derived from data collected through Island offices and Marine Research Center are used to make recommendations to the Fisheries Minister and the Cabinet regarding the status of the turtle population. Results have also been used to increase awareness among students.

**3.4.1 Has your country undertaken any initiatives (nationally or through collaboration with other Range States) to standardise methods and levels of data collection? [BPR, INF]**

YES  NO  UNSURE

**3.4.2 To what extent does your country exchange scientific and technical information and expertise with other Range States? [SAP, IND]**

OFTEN (SYSTEMATICALLY)  OCCASIONALLY  RARELY  NEVER

**3.4.3 If your country shares scientific and technical information and expertise with other Range States, what mechanisms have commonly been used for this purpose? Comment on any positive benefits/outcomes achieved through these interactions. [INF]**

N/A. Because turtle data and the projects were handled directly from Marine Research Center we do not have clear idea about the exchange of scientific data; no summary report has been compiled.

**3.4.4 Does your country compile and make available to other countries data on marine turtle populations of a regional interest? [INF]**

YES  NO  UNSURE

**OBJECTIVE IV. INCREASE PUBLIC AWARENESS OF THE THREATS TO MARINE TURTLES AND THEIR HABITATS, AND ENHANCE PUBLIC PARTICIPATION IN CONSERVATION ACTIVITIES**

**4.1.1 Describe the educational materials, including mass media information programmes that your country has collected, developed and/or disseminated. [INF, PRI]**

- Powerpoint presentation for students
- Handbooks
- Annual visit for primary school kids to the Banyan Tree Maldives Turtle Conservation site, to facilitate better understanding of what's being done to protect turtle population

**4.1.2 Which of the following groups have been the targets of these focused education and awareness programmes described in above in Section 4.1.1? [PRI, INF]**

- Policy makers
- Fishing industry

**Local/Fishing communities**

Indigenous groups

**Tourists**

**Media**

Teachers

**Students**

Military, Navy, Police

Scientists

Other:

None of the above

**4.1.3 Have any community learning / information centres been established in your country? [BPR, SAP]**

YES  **NO**

**4.2 Alternative livelihood opportunities [IND, BPR] Describe initiatives already undertaken or planned to identify and facilitate alternative livelihoods (including income-generating activities) for local communities.**

Turtle meat and eggs were considered as delicacy and consumption is more culturally oriented, rather than for gaining economic benefits. Hence no alternative livelihood opportunities were provided when the turtle ban started in 1995 and there is no plan to provide alternative livelihood options for local communities.

**4.3.1 Describe initiatives already undertaken or planned by your country to involve local communities, in particular, in the planning and implementation of marine turtle conservation programmes. Please include details of any incentives that have been used to encourage public participation, and indicate their efficacy. [BPR, IND]**

N/A

**4.3.2 Describe initiatives already undertaken or planned to involve and encourage the cooperation of Government institutions, NGOs and the private sector in marine turtle conservation programmes. [IND, BPR]**

Several conservation initiatives are being undertaken among government institutions and NGOs. The private sector, particularly resorts promoting eco-tourist islands, has taken initiatives to develop turtle conservation programs. One of the most successful marine turtle conservation programs was initiated by "Banyan Tree Maldives". They started turtle conservation programmes in 2005-2010 and the Ministry has extended their permit for another 5 years. The quote below is from the introduction of their program.

"The Marine Turtle conservation program involves a "head start" project for green turtles, which is based on sound scientific methods, and a community and guest education program. The project aims to rear a small sample of turtle hatchlings for one year until they reach a size at which they are too big to be eaten except by the largest of predators. The project also ensures 90% of hatchlings continue their normal journey when they hatch to minimise deteriorious effects due to intervention to their life cycle. The education component involves Maldivian school children and guests from Banyan Tree and Angsana resort. Through a series of lectures and visits, school children are provided with valuable information of marine turtles and their conservation needs, a message that is spread throughout the nation. Guests are encouraged to learn and have an opportunity to understand the turtles' behaviour while being part of a long term conservation programme."

This program relocates nests in order to provide maximum protection and provide two distinct enclosures in which to

develop through their early life stages.

## **OBJECTIVE V. ENHANCE NATIONAL, REGIONAL AND INTERNATIONAL COOPERATION**

**5.1.1 Has your country undertaken a national review of its compliance with Convention on International Trade in Endangered Species (CITES) obligations in relation to marine turtles? [SAP]**

YES  NO  NOT APPLICABLE

**5.1.2 Does your country have, or participate/cooperate in, CITES training programmes for relevant authorities? [SAP]**

YES  NO  NOT APPLICABLE

**5.1.3 Does your country have in place mechanisms to identify international illegal trade routes (for marine turtle products etc.)? Please use the text box to elaborate on how your country is cooperating with other States to prevent/deter/eliminate illegal trade. [SAP]**

YES  NO  NOT APPLICABLE

**5.1.4 Which international compliance and trade issues related to marine turtles has your country raised for discussion (e.g. through the IOSEA MoU Secretariat, at meetings of Signatory States etc.)? [INF]**

N/A

**5.1.5 Describe measures in place to prevent, deter and eliminate domestic illegal trade in marine turtle products, particularly with a view to enforcing the legislation identified in Section 1.5.1. [INF]**

To prevent domestic illegal trade in marine turtle products, it is prohibited by law to display or sell any turtle product from local shops.

It is illegal to consume or sell turtle meat or turtle eggs.

**5.2.1 Has your country already developed a national action plan or a set of key management measures that could eventually serve as a basis for a more specific action plan at a national level? [IND]**

YES  NO

**5.2.2 From your country's perspective, which conservation and management activities, and/or which particular sites or locations, ought to be among the highest priorities for action? [PRI]**

5.2.3 Please indicate, from your country's standpoint, the extent to which the following **local** management issues require **international** cooperation in order to to achieve progress. **[PRI]**

- |  |  |
|--|--|
| Illegal fishing in territorial waters        | <input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL |
| Incidental capture by foreign fleets         | <input type="checkbox"/> ESSENTIAL <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input checked="" type="checkbox"/> <b>NOT AT ALL</b> |
| Enforcement/patrolling of territorial waters | <input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL |
| Hunting/harvest by neighboring countries     | <input type="checkbox"/> ESSENTIAL <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input checked="" type="checkbox"/> <b>NOT AT ALL</b> |
| Poaching, illegal trade in turtle projects   | <input type="checkbox"/> ESSENTIAL <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input checked="" type="checkbox"/> <b>NOT AT ALL</b> |
| Development of gear technology               | <input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL |
| Oil spills, pollution, marine debris         | <input type="checkbox"/> ESSENTIAL <input type="checkbox"/> IMPORTANT <input checked="" type="checkbox"/> <b>LIMITED</b> <input type="checkbox"/> NOT AT ALL |
| Training / capacity-building                 | <input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL |
| Alternative livelihood development           | <input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL |
| Identification of turtle populations         | <input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL |
| Identification of migration routes           | <input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL |
| Tagging / satellite tracking                 | <input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL |
| Habitat studies                              | <input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL |
| Genetics studies                             | <input type="checkbox"/> ESSENTIAL <input type="checkbox"/> IMPORTANT <input checked="" type="checkbox"/> <b>LIMITED</b> <input type="checkbox"/> NOT AT ALL |

5.3.1 Identify existing frameworks/organisations that are, or could be, useful mechanisms for cooperating in marine turtle conservation at the sub-regional level. Please comment on the strengths of these instruments, their capacity to take on a broader coordinating role, and any efforts your country has made to enhance their role in turtle conservation. **[INF, BPR]**

5.3.2 Has your country developed, or is it participating in, any networks for cooperative management of shared turtle populations? **[BPR, INF]**

YES  **NO**  NOT APPLICABLE

5.3.3 What steps has your country taken to encourage Regional Fishery Bodies (RFBs) to adopt marine turtle conservation measures within Exclusive Economic Zones (EEZs) and on the high seas? **[SAP]**

Maldives has voiced our concern about the increasing purse seine fishing with the floating FADs at the technical committee meeting of IOTC.

We have encouraged and include as many measures as possible in the fisheries regulations to minimize effects on the

turtle population.

We have also raised our concern and encouraged small nations like us to do pole-and-line fishing which is better sustainable fishery.

**5.4.1 Describe your country's needs, in terms of human resources, knowledge and facilities, in order to build capacity to strengthen marine turtle conservation measures. [PRI]**

In terms of human resources and capacity, we have only limited resources. We would need more international funding and technical assistance to develop and impliment a marine turtle management plan. Also, we would need financial assistance to run a community awareness programme through local NGOs.

**5.4.2 Describe any training provided in marine turtle conservation and management techniques (e.g. workshops held, training manuals produced etc.), and indicate your plans for the coming year. [PRI, INF]**

The plans for year 2011 include developing a Marine Turtle Management Plan and to initiate its implementation, to conduct awareness programs through TV, radio, and to conduct awareness sessions at the province level.

**5.4.3 Specifically in relation to [capacity-building](#), describe any partnerships developed or planned with universities, research institutions, training bodies and other relevant organisations. [BPR]**

We would be glad to participate and cooperate, if there is any oppotunity for capacity building, but we do not have any partnership developed at the monent.

**5.5.1 National policies and laws concerning the conservation of marine turtles and their habitats will have been described in Section 1.5.1. Please indicate their effectiveness, in terms of their practical application and enforcement. [SAP, TSH]**

The policies and laws are not very effective because the law enforcement agencies are not as effective as they should be. However, the turtle product trade is completely stopped from tourist shops and locally.

**5.5.2 Has your country conducted a review of policies and laws to address any gaps, inconsistencies or impediments in relation to marine turtle conservation? If not, indicate any obstacles encountered in this regard and when this review is expected to be done. [SAP]**

YES  NO  UNSURE

**5.5.3 From the standpoint of law enforcement, has your country experienced any difficulties achieving cooperation to ensure compatible application of laws across and between jurisdictions? [TSH]**

YES  NO  UNSURE

**OBJECTIVE VI. PROMOTE IMPLEMENTATION OF THE MoU INCLUDING THE CONSERVATION AND MANAGEMENT PLAN**

**6.1.1 What has your country already done, or will it do, to encourage other States to sign the IOSEA MoU?** [\[INF\]](#)

**6.1.2 Is your country **currently** favourable, in principle, to amending the MoU to make it a legally binding instrument?** [\[INF\]](#)

YES  NO  NO VIEW

**6.1.3 Would your country be favourable, over a **longer time horizon**, to amending the MoU to make it a legally-binding instrument?** [\[INF\]](#)

YES  NO  NO VIEW

## **6.2 Secretariat and Advisory Committee**

**6.2.1 What efforts has your country made, or can it make, to secure funding to support the core operations of the IOSEA MoU (Secretariat and Advisory Committee, and related activities)?** [\[IND\]](#)

**6.3.1 What funding has your country mobilised for domestic implementation of marine turtle conservation activities related to the IOSEA Marine Turtle MoU? Where possible, indicate the specific monetary values attached to these activities/programmes, as well as future plans.** [\[IND\]](#)

**6.3.2 Has your country tried to solicit funds from, or seek partnerships with, other Governments, major donor organisations, industry, private sector, foundations or NGOs for marine turtle conservation activities?** [\[IND\]](#)

YES  NO

**6.3.3 Describe any initiatives made to explore the use of economic instruments for the conservation of marine turtles and their habitats.** [\[BPR\]](#)

N/A

**6.4.1 Has your country designated a lead agency responsible for coordinating national marine turtle conservation and management policy? If not, when is this information expected to be communicated to the IOSEA MoU Secretariat?** [\[IND\]](#)

YES  NO

**6.4.2 Are the roles and responsibilities of all government agencies related to the conservation and management of marine turtles and their habitats clearly defined? [IND]**

**YES**  NO  UNSURE

The two leading government agencies responsible for conservation and management of marine turtles and their habitats are the Fisheries Management Agency and the Environment Protection Agency (EPA).

**6.4.3 Has your country ever conducted a review of agency roles and responsibilities? If so, when, and what was the general outcome? If not, is such a review planned and when? [SAP],**

YES  **NO**  UNSURE

**Comments/suggestions to improve the present reporting format:**

**Additional information not covered above:**